

REMARKS

This Response addresses the issues raised by the Examiner in the Office Action mailed May 6, 2003. Initially, Applicants would like to thank the Examiner for the careful consideration given this case. In view of the above amendments and the following remarks, Applicants feel that all outstanding issues have been addressed and prompt allowance of the remaining claims is respectfully requested.

Each of the above amendments finds ample support throughout the specification and introduces no new matter into the present prosecution. In light of these amendments and remarks, it is submitted that all pending claims are allowable, and timely notice to such effect is respectfully requested.

Claim Objections

The Examiner objected to Claim 22 as improperly depending from Claim 3, rather than Claim 7. Claim 22 has been amended herein to correct this dependency. The Examiner also noted that Claim 7 introduced the term “two hand leads.” In fact, the term is “two hang leads” (see originally filed Claim 7). Although there was a typographical error in the claim listing of Applicant’s February 6, 2003 Amendment, this language was not amended (see “Original” claim notation). Therefore, no current amendment is necessary, but, in an effort to address the Examiner’s confusion, such an amendment has been made above.

Claim Amendments

In order to better distinguish the prior art from the presently claimed invention, Applicant has amended the lone independent claim (Claim 21) to further point out novel features. Specifically, Claim 21 now recites that the second surface of the resin encapsulated body and the bottom surface of the leads are coplanar. Further, Claim 21 also includes the limitation that a lead pocket, substantially equal in height to the leads along the second area is formed between each of the leads. These limitations are not shown in the prior art of record.

Together, these features maximize the amount of surface area of the leads available to be connected to a printed a circuit board, while preventing each lead from electrically contacting adjacent leads (by virtue of the lead pocket in the second area). Therefore, in addition to the

third area of the leads (the normal connection point), the two side surfaces and the bottom surface of the second area are also able to be wetted to solder. Further, because the lead pockets formed between the second areas of the leads have a depth substantially the same as the thickness of the leads along the overall length of the second area, the solder does not flow or reach to the next lead to thereby prevent an electric short circuit between adjacent leads.

As a result of these features, it is possible to obtain a product having an increased strength at the time of mounting because the area wetted to the mounting area (second and third areas) of the leads connected to a printed circuit board during the mounting operation can be increased. This additional strength is especially effective against heat stress.

102 Rejections

The Examiner rejected Claims 3, 7, 9 and 21 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,475,259 to Kasai et al. ("Kasai"). Specifically, the Examiner noted that Kasai describes a semiconductor device comprising a plurality of leads having a square cross-section and protruding from a resin encapsulated device. The Examiner further describes these leads as including all of the features claimed as the first, second, and third areas of the leads.

The portions of Kasai pointed out by the Examiner (Figures 39-41, Col. 20, line 41 to Col. 23, line 5) make it clear that Kasai does not address the claim amendments described above (e.g., coplanar nature of hang leads and resin encapsulated body, the second areas with lead pockets at the same height as the leads over the length of the second area, etc.). Kasai does not include the newly added features of the present invention, and, therefore, is not capable of providing the results described above (e.g., improved mounting strength through increased mounting surface area).

The Examiner also rejected Claims 3, 7, 9 and 21-22 under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 5,986,209 to Tandy ("Tandy"). Like Kasai, the Examiner listed reference numerals from Tandy that purportedly show each of the claimed features of the present application.

Again, the portions of Tandy pointed out by the Examiner (Figures 5, 6, 7B and 7D, Col. 4, line 1 to Col. 5, line 10), do not disclose the newly claimed features of the present invention (e.g., the lead pockets in the second area of the leads with substantially the same thickness as the

leads along the overall length of the second area). In Tandy, Figures 7A and 7B show that the package 120 is chamfered between the leads to form the chamfer portions 126. These chamfer portions 126, however, are quite different from the lead pockets as claimed in the present invention. For example, because the Tandy chamfer portions 126 are not formed deep enough between the leads, the solder supplied to the lead portion during mounting will flow out of the chamfer portion 126, and this flow out solder will electrically connect to the solder supplied to the next lead (generating an electric short circuit between the leads). This problem also arises in the examples shown in Figure 7C and 7E of Tandy.

On the contrary, in the present invention, as the lead pocket formed between said second area of each of said leads has a depth which is substantially the same as the thickness of the leads along the overall length of the second area, the solder will not flow to the next lead in order to prevent any short circuits between the leads. Tandy clearly does not address the present claims.

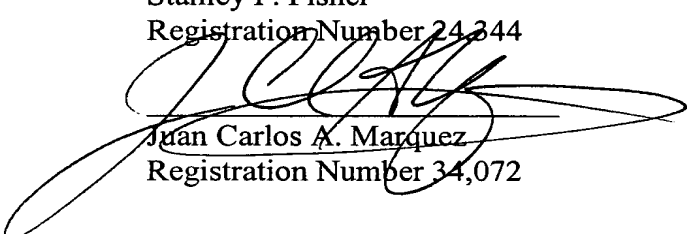
Conclusion

The present amendments and remarks fully address all of the issues raised by the Examiner in the Office Action mailed on May 6, 2003. In view of the amendments and remarks included herein, it is submitted that the present application is in condition for final allowance and notice to such effect is respectfully requested. If the Examiner believes that additional issues

need to be resolved before this application can be passed to issue, the undersigned invites the Examiner to contact him at the telephone number provided below.

Respectfully submitted,

Stanley P. Fisher
Registration Number 24,344



Juan Carlos A. Marquez
Registration Number 34,072

REED SMITH LLP
3110 Fairview Park Drive
Suite 1400
Falls Church, Virginia 22042
(703) 641-4200
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